

MAJOR PROGRAM POINTS

"FIRE PREVENTION AND SAFETY IN HEALTHCARE FACILITIES"

Part of the "GENERAL SAFETY SERIES"

Quality Safety and Health Products, for Today...and Tomorrow

OUTLINE OF MAJOR PROGRAM POINTS

The following outline summarizes the major points of information presented in the program. The outline can be used to review the program before conducting a classroom session, as well as in preparing to lead a class discussion about the program.

- **Since the dawn of man, fire has been a powerful tool which allows us to:**
 - Cook food.
 - Keep warm.
 - Illuminate our surroundings.

- **But throughout our history, fire has also been a terrible destroyer.**
 - It has struck hospitals, nursing homes and other healthcare institutions with devastating results.

- **Today, these structures are designed to be "fireproof" but preventing fires remains a top priority throughout the healthcare industry, for several reasons.**
 - Burning materials often release toxic vapors.
 - Many patients are physically unable to get out of harm's way.

- **To help prevent fires, you must know what causes things to burn. All fires involve three elements:**
 - Heat.
 - Fuel
 - Oxygen.

- **Removing any of these elements will stop a fire.**

- **Fires start with heat, which is the "source of ignition." Heat can be generated by many things, including:**
 - Open flames.
 - Chemical reactions.
 - Faulty electrical circuits.
 - Overheated equipment.
 - Unshielded hot surfaces.

- **Once a fire is burning, it produces more heat and grows even larger.**
 - As long as there is enough fuel and oxygen, a fire will continue to spread.

- **Fuel can include materials like:**
 - Paper.
 - Wood.
 - Metals.
 - Flammable liquids.
 - Ignitable gases.

- **The vapors coming off of a flammable or combustible material, mixed with oxygen in the air, produce flames.**
 - Some materials are always giving off flammable vapors, while others have to be heated to produce them.
 - For example, you have to apply heat to get wood to burn.
 - The heat from the flames causes the wood to decompose... creating ash and flammable vapors.
 - These vapors mix with oxygen in the air to produce more flames.
 - This chain reaction will continue until the oxygen runs out, the heat is removed or the fuel is used up.

- **The temperature at which a material gives off flammable vapors is known as its "flashpoint."**
 - Some materials have extremely high flashpoints and require a tremendous amount of heat to burn.
 - Other substances have low flashpoints, which makes them easy to ignite.

- **A good example of a substance with a low flashpoint is isopropyl alcohol (rubbing alcohol), which can be ignited at 53 degrees Fahrenheit (11.7 degrees Celsius) or above.**
 - Isopropyl alcohol and other materials that have flashpoints below 100 degrees Fahrenheit (37.8 degrees Celsius) are considered flammable.

- **These substances are especially dangerous, because they are almost always giving off vapors that can burn.**

- **Materials that have flashpoints between 100 and 200 degrees Fahrenheit, (37.8 and 93.3 degrees Celsius) are considered to be combustible.**
 - Combustibles, such as some disinfectant solutions, have to be heated up before they produce ignitable vapors.
 - As a result, they are easier to control and safer than flammables.

- **However, the more oxygen there is in the atmosphere, the lower a substance's flashpoint.**
 - A cleanser that would be combustible in "ordinary" air could be as flammable as gasoline in areas where patients are being given oxygen.

- **As long as there is enough fuel, heat and oxygen a fire will continue to spread.**
 - To extinguish a fire this "chain reaction" must be interrupted.

- **What fuels a fire determines what can be used to put it out.**
 - Fires fueled by anesthetic gases can sometimes be extinguished by shutting off the gas at its source.
 - But most fires have to be put out by applying a substance that either removes the heat... or the oxygen.

- **You have to be careful though. Applying the wrong material will make things worse.**
 - For instance, water will extinguish smoldering paper and wood, but can cause burning liquids to spread.
 - Water also conducts electricity, so it cannot be used where it could come into contact with live wires or electrical equipment.

- **To identify the different types of burning materials, and indicate what substances can be used to extinguish them, fires are separated into four classes:**
 - Class A.
 - Class B.
 - Class C.
 - Class D.

- **Class "A" fires involve "ordinary" combustibles, such as paper, cardboard and wood.**
 - Water can be used to extinguish these burning materials.
- **Class "B" fires are fueled by flammable gases and liquids, such as some cleaning supplies and anesthetic gases.**
 - Class B fires are usually extinguished by applying chemical foams that blanket the area and cut off the fire's oxygen supply.
- **Class "C" fires are electrical, and can involve electronic equipment, lighting fixtures and outlets.**
 - These are also fought by smothering the fire.
 - Carbon dioxide, or other "nonconductive" extinguishing agents must be used in these situations.
- **Class "D" fires are fueled by combustible metals such as potassium, sodium and magnesium.**
 - It is unlikely that you will ever encounter a Class D fire in a healthcare environment.
 - If you do... don't attempt to put it out.
 - Class D fires are dangerous to extinguish and can only be fought by smothering them with dry sand or special chemical powders.
- **When a fire occurs, you and your coworkers need to act quickly.**
 - Patient safety is the top priority.
- **Your facility's "Emergency Action Plan" will help you to prepare for a fire by discussing:**
 - How to report a fire.
 - Who is authorized to fight fires.
 - Who is responsible for patient safety.
 - How people are to be evacuated.
 - How patients should be cared for during an emergency.

- **Often the first indication that a fire has broken out is when a smoke detector goes off.**
 - What happens next depends on what type of alarm system your facility has.
- **Some alarm systems are set up to automatically notify the fire department.**
 - They may also trigger mechanized corridor doors to close and shut down ventilation systems, to prevent smoke from spreading.
 - In other facilities the staff must see that these things are done.
- **In either case, you and your coworkers are responsible for ensuring that:**
 - Patients are safe.
 - Emergency personnel are responding.
 - The fire has been contained.
- **The actions that you take during a fire, and the order in which you perform them, can mean the difference between life and death.**
- **You need to act fast and remember the acronym "R.A.C.E":**
 - Rescue.
 - Alarm.
 - Confine.
 - Extinguish.
- **The first thing that you should do is to rescue anyone who is in immediate danger from flames or smoke.**
 - Get them out of the room.
 - Then close the door to keep the fire and smoke from spreading.
 - But be careful, smoke can build up quickly, making it impossible to breathe.
 - If it's too dangerous to try and help others let trained and properly equipped personnel handle the situation.
- **Once you have gotten people out of immediate danger, make sure that the fire alarm has been activated and 911 is called.**

- **Ensuring that smoke and flames are confined from the rest of the facility is the next step.**
 - Modern healthcare facilities are made of fireproof materials, and it is unlikely that a fire will engulf an entire structure.
 - But even small fires can create a lot of smoke and toxic vapors, which can spread throughout a building and threaten the lives of everyone inside.

- **It is critical to "lock these hazards out" by closing all doors and shutting down ventilation systems.**
 - Even if your facility is equipped with automatic fire doors you should check to see that nothing has prevented them from closing.

- **Make sure that the power to the affected area has been shut down as well.**
 - This ensures that electricity is not contributing to the blaze, and guards against anyone being electrocuted.

- **Only after patients have been rescued, the alarm has been sounded, and the smoke from the fire has been contained... should you think about trying to extinguish a fire.**
 - Small fires can sometimes be handled by using a fire extinguisher.

- **Healthcare facilities are required by law to have fire extinguishers throughout their buildings.**
 - All employees, from nurses to maintenance personnel, should be trained to use them.

- **Don't attempt to put a fire out if you are not trained, the fire has grown too large or if you have to open the door to the room where it is occurring.**
 - Keeping a fire contained is more important than extinguishing the blaze.

- **While the R.A.C.E procedure provides a good guideline, some fires may require that you do things in a different order.**
 - For instance, if a person's clothing is on fire you will have to first extinguish the flames in order to rescue them.

- **A "fireproof blanket" can be used to smother a fire.**
 - You shouldn't use ordinary sheets or blankets, since these can add fuel and make things worse.
- **If your own clothing catches on fire remember to "Stop... Drop... and Roll."**
 - Stop in your tracks.
 - Drop to the ground.
 - Roll back and forth while covering your face with your hands.
 - Continue to roll until the flames are smothered.
- **When a fire alarm goes off in an office or industrial building, everyone should evacuate to a safe area away from the structure. But in most healthcare environments this is not practical.**
 - In fact, moving some hospital patients and nursing home residents can put them at risk, so they are typically "defended in place."
 - This means that they are kept in their rooms during an emergency, with nurses or other designated support personnel looking after them.
- **Patients who are ambulatory are often directed to evacuate to an area of "safe refuge," which is typically on the same floor.**
 - Only in extreme emergencies should patients be moved outside the facility.
- **In most cases, visitors and "non-essential" employees are directed to follow predetermined evacuation routes whenever an emergency occurs.**
 - Everyone should be trained to help evacuate visitors, and should know of at least two escape routes.
- **When evacuating, be careful that you're not heading into danger.**
 - If it's not safe to proceed in the direction that you are going, use the alternate route.
- **Remain composed and in control of the situation.**
 - Remind people to walk (not run), and help to keep the group orderly.
 - If someone panics, do what you can to calm them down.

- **You shouldn't use an elevator to try and escape from a burning building.**
 - You could get trapped inside if the power were to fail.
 - Use the stairs instead, but be cautious when you approach closed doors.

- **Make certain that doors are cool to the touch before opening them.**
 - Use the back of your hand to check the door and the knob.
 - Never open a door that is hot! It probably has flames behind it.

- **If a door is cool, you can proceed on through.**
 - But be sure to close it behind you, to contain the fire.

- **Since smoke rises, you should crawl on the floor if necessary to avoid inhaling it.**
 - Cover your face with a wet cloth, if possible.
 - Get to fresh air.
 - Then seek medical attention.

- **Your facility's Emergency Action Plan will designate a location for people to gather, as well as discuss how to make sure that everyone is accounted for.**

- **The best way to "fight" fire is to keep it from starting in the first place. Your facility's written "Fire Prevention Plan" helps you to recognize potential fire hazards and eliminate hazardous situations. The plan will include:**
 - A list of potential fire hazards and ignition sources in your facility.
 - Proper handling and storage procedures for the flammable and combustible substances used on site.

- **Laundry areas, kitchens, storage closets, nurse's stations and patient rooms are some of the most likely places for fires to start.**
 - One of the easiest ways to help prevent fires is to inspect these areas frequently.
 - Stacks of boxes, scattered papers and piles of laundry can all be a "fire waiting to happen."

- **Cigarettes are by far the most common cause of fires in healthcare facilities.**
 - These fires are ignited by patients, visitors and workers who smoke in areas where they shouldn't.
 - Smoking is especially dangerous when bottled oxygen or flammable substances are nearby.
 - Make sure everyone strictly adheres to your facility's smoking policy (usually this means that people should only smoke outside, away from buildings, in a designated area).

- **Flammable liquids are another potential fire hazard.**
 - Alcohol-based hand cleansers, disinfectants and "pre-moistened" antiseptic pads are all highly flammable.
 - Store these materials away from sources of ignition and be careful when you use them.

- **You have to be particularly cautious when working in areas where oxygen is being used.**
 - A stray spark or hot surface is much more likely to ignite a fire in an "oxygen enriched" atmosphere.

- **Nitrous oxide (laughing gas) is another "oxidizer" that can raise a room's oxygen level and cause things to burn more easily.**
 - Other anesthetics... including fluroxene, cyclopean, diethyl ether and ethylene... are flammable gases that can ignite when exposed to heat, sparks or flames.

- **When any of these anesthetics are present the lamps, electronics and other electrical devices in the room must be specifically approved for that environment.**
 - Check with your supervisor if you have any questions.

- **Electricity is a major cause of fires in healthcare facilities.**
 - Small appliances, overloaded circuits and overheated equipment are the primary hazards to look for.

- **Electric shavers, coffeemakers, radios and other electrical devices that people bring from home cause most electrical fires.**
 - Patients and visitors should be informed that electrical appliances are not allowed in patient rooms without approval.
 - This policy should be strictly enforced.
- **Healthcare facilities typically use a lot of electrical equipment.**
 - So you need to be careful that circuits don't become overloaded.
- **"Overloads" occur when equipment draws too much power for the circuit that it is on.**
 - In time this can cause wiring to heat up and burn.
- **To prevent overloads, never use extension cords on equipment that "pulls" a lot of electricity.**
 - Don't use power strips to plug multiple pieces of equipment into the same receptacle either... since this can also overload a circuit.
 - Many healthcare facilities have specific rules governing the use of extension cords and other electrical adaptors.
 - Be sure to talk to your supervisor before using any of these devices.
- **Electrical equipment that is in poor condition can also cause a fire.**
 - To prevent this, you should always inspect electrical devices **before** using them.
 - Pay particular attention to power cords, to ensure that they are not cracked, frayed or missing their grounding plugs.
- **Overheated equipment is another problem to watch out for.**
 - If you see smoke, or equipment smells like it is burning, unplug it... and immediately notify your supervisor.

*** * * SUMMARY * * ***

- **You are an important part of your facility's Fire Prevention Plan.**
 - So you need to know how to help prevent fires... and respond if one occurs.
- **Inspect your work area often and make sure that things are tidy.**
- **Be on the lookout for people smoking in areas where they shouldn't.**
- **Understand how electrical devices can ignite a fire, and make sure that cords and components are in good shape.**
- **Always check with your supervisor before using extension cords, power strips or other electrical adaptors.**
- **Know where oxygen and flammable materials are used and take appropriate precautions.**
- **Understand your responsibilities in an emergency. Remember "R.A.C.E."**
- **Rescue people from immediate danger.**
- **Alert the fire department and the facility to the situation.**
- **Confine the fire by shutting all doors, so that smoke and toxic fumes don't spread.**
- **Learn how to use fire extinguishers so that you can put out fires.**
- **Know how to safely evacuate patients and visitors.**
- **Remember, no one is "immune." Fires can occur anywhere... even in a "fire-proof" facility. By staying alert and knowing what to do, you can save lives!**